

MSK.P-041-WO

- 16 -

CLAIMS

1. A method for replication of a target region of a target DNA molecule comprising the steps of:

- (a) introducing a D-loop into the target DNA molecule at a first initiation point adjacent to the target region in a reaction mixture;
- (b) adding proteins to the reaction mixture to assemble a replisome at the D-loop; and
- (c) providing DNA monomers and ATP to the replisome, whereby the target region is reproduced.

2. The method of claim 1, wherein the target DNA molecule is a duplex DNA.

3. The method of claim 2, wherein the step of introducing a D-loop is performed by hybridizing the duplex DNA molecule with a first oligonucleotide primer which is substantially complementary to the first initiation site.

4. The method of claim 3, wherein the first oligonucleotide primer has a length of from 20 to 50 bases.

5. The method of claim 3, wherein the first oligonucleotide primer comprises a detectable label or capture moiety.

6. The method of claim 3, further comprising the step of introducing a second D-loop by hybridizing the duplex DNA molecule with a second oligonucleotide primer which is substantially complementary to a second initiation site, said target region lying between the first and second initiation sites.

7. The method of claim 6, wherein the first and second oligonucleotide primers each have a length of from 20 to 50 bases.

AMENDED SHEET